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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,172	09/24/2003	I-Kai Pan	PANI3003/EM	4035

23364 7590 05/16/2005

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EXAMINER
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FINEMAN, LEE A

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/668,172	PAN ET AL.	
	Examiner	Art Unit	
	Lee Fineman	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/9/05</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species I in the reply filed on 9 February 2005 is acknowledged. Applicant also amended claim 1 and cancelled claims 4 and 6. Claims 1-3, 5 and 7-8 are pending.

### ***Information Disclosure Statement***

2. The Taiwan Patent 271472 fails to disclose a publication date as required by 37 CFR 1.98 (b) (4) and therefore has not been considered.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the rhombus protrusions (claim 1) and convex pillar lens array (claim 3) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. NOTE: Rhombus is defined as a parallelogram with four equal sides in Merriam-Webster's Collegiate Dictionary Tenth Edition. The drawings show a triangular-type protrusion at reference number 14 not a rhombus.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 133.

Art Unit: 2872

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

6. The disclosure is objected to because of the following informalities:

In the brief description of drawings (page 3, line 1) "FIG. 1" should be --FIG. 1a--.

Further, the disclosure details "rhombus protrusions 14" throughout the specification, but the drawings show a triangular-type protrusion. It is unclear which protrusion shape is correct.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

Art Unit: 2872

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drain et al., US 2003/0206256 A1 in view of Wang, US 2002/0041441 A1.

Regarding claims 1, 3 and 5, Drain et al. disclose in figs. 7 and 8 a composite micro-structured sheet for diffusing and condensing light comprising a substrate (16) having a top surface and a bottom surface (figs. 7 and 8), wherein a plurality of straight trenches (76) is formed on the bottom surface for diffusing the incident light on the bottom surface, and a plurality of rhombus protrusions (page 4, section [0057], especially line 10, where protrusions 64 are rhomboidal) is formed on the top surface for raising the semi-brightness angle of the light that has passed through the bottom surface (page 3, section [0038]). Drain et al. further disclose on page 4, section [0057] that many different shapes can be used for the trenches/protrusions but does not explicitly state wherein the plurality of straight trenches has an arc cross-section; wherein each straight trench with an arc cross-section is constructed of a convex pillar lens array or a concave pillar lens array; and wherein the size and focal length of the lenses of the convex pillar lens array or the concave pillar lens array are all the same. Wang teaches in figures 1-3, conventional shapes for microstructure straight trenches, including a plurality of straight trenches (31) with an arc cross-section (fig. 1); wherein each straight trench with an arc cross-section is constructed of a convex pillar lens array (fig. 1); and wherein the size and focal length of the lenses of the convex pillar lens array are all the same (fig. 1). It would have been obvious to one

Art Unit: 2872

of ordinary skill in the art at the time the invention was made to make the straight trenches of Drain et al. have an arc cross-section and be constructed of a convex pillar lens array as suggested by Wang to provide different light directing characteristics for different brightness enhancement.

Regarding claims 2, Drain et al. further disclose wherein the substrate is made of polymethyl methacrylate (PMMA) or polycarbonate (PC) (page 4, section [0050], line 7).

Regarding claims 7, Drain et al. further disclose wherein the rhombus protrusions are parallel to each other (see fig. 5).

Regarding claims 8, Drain et al. further disclose wherein an included angle between each straight trench with an arc cross-section and the respective rhombus protrusion ranges from 0 to 90 degrees (it is 0 degrees in figs. 7 and 8).

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### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Masaki et al., US 6,639,725 B2; Higuchi et al., US 5,887,964; Miller, US 5,471,348; Shie et al., US 6,266,476 B1; and Takahashi et al., US 4,729,631 disclose microstructures with protrusions and trenches for brightness and light direction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAF

May 5, 2005



MARK A. ROBINSON  
PRIMARY EXAMINER